ELECTRONIC AUCTION METHOD AND SYSTEM PERMITTING SIMULTANEOUS BIDS ON MULTIPLE, DIFFERENT ITEMS

BACKGROUND OF THE INVENTION

1.   Field of the Invention:

5   The present invention relates generally to data processing systems and more particularly to electronic commerce. Still more particularly, the present invention relates to an electronic auction method and system which permits simultaneous bids on multiple, different items
10   from a single, displayed screen image.

2.   Description of the Related Art

Prior to the advent of electronic auctioning over computer networks or electronic commerce, auctions were held in a group of gathered bidders with an auctioneer.
15   In traditional auctions, an auction is conducted on behalf of a seller by an auctioneer. The auctioneer receives a list of items to be sold and possibly a minimum and/or reserve price for those items. During the auction, a plurality of bidders place bids under the
20   guidance and control of the auctioneer. In some cases, multiple bidders may pool their bids, and the pooled bids are submitted as a single bid with a combined quantity to the auctioneer.

The auctioneer enforces the rules of the auction,
25   such as minimum bid price and quantities, minimum bid incrementing from the previous bid for a new bid, and time limits for placing bids. Auction bidders are

typically qualified as to their ability to complete the
purchase should their bid be the winning bid prior to
entering the auction room.

5   Many online auctioning systems such as
"priceline.com" and "mercata.com" have become very
popular for individuals and businesses to use to take
advantage of auctions at which they cannot be physically
present. Such e-commerce auctions or online auctions are
usually conducted over a specified period of time of
10   opening and closing for bids, and are typically conducted
under one of several well-known sets of rules or models.
These common models include "Dutch" auctions, progressive
auctions, "Yankee" auctions, single-bid auction, reserve
auctions, and hybrids of these types of auctions. The
15   "Dutch" and "Yankee" auctions permit bids on a part of or
the whole offered lot.

       However, most sales offering and bid systems
conducted by manufacturers of goods or service providers
are conducted under a different set of procedures and
20   processes. In a typical trader and broker system for
offering and accepting bids, a manufacturer or service
provider will notify one or more traders of available
products or services, quantities, and minimum acceptable
bid values. The trader then provides offerings to one or
25   more brokers, to which the brokers may respond with bids.

       In some cases, bids may be accepted for either
partial lots or whole lots of offered products. These
offerings and the corresponding bids are collected by the
30   trader, and the trader makes a decision about which bids
to accept. The traders subsequently respond to the

manufacturer or service provider with actual orders or
purchases.

Although the B2B offering and bid acceptance process
may be conducted similarly to an auction, it is not an
5   auction in the strict sense in that the order
fulfillment, or bid acceptance, process is conducted
usually by the trader at his discretion. For example,
under a typical auction process, the highest qualified
bidder may be defined as the bid winner. However, in a
10   B2B offering and bid collection system, the trader may
favor the second or third highest bid over the highest
bid because the broker placing the second or third
highest bid has preferred business arrangements, such as
a longer history of purchasing from the trader or a
15   history of larger volume purchases with the trader.

In typical electronic auctions, potential buyers may
view items available for sale through the auction. The
buyer must first select an item. Once the item is
selected, a new screen image, or web page, is displayed
20   which gives current information regarding the auction of
that item, such as the number of items available and
currently required minimum bid. If the buyer wishes to
place a bid, a different screen image, or web page, is
displayed which includes an entry field into which the
25   buyer may enter a bid. Once the buyer has entered a bid,
the buyer may submit the bid. Another screen image is
then displayed which permits the buyer to review and
confirm the bid. Thereafter, a result screen image is
displayed which shows the buyer the results of the bid.
30   The buyer, thus, goes through three separate screen

images in order to place a bid, confirm a bid, and see
the results of the bid.

If the buyer had originally wished to bid on two or
more different items, the buyer must repeat the process
5   described above separately for each different item.
Therefore, for example, if the buyer wanted to bid on
five different items, this process must be repeated five
different times. In order to place five different bids,
the buyer must go through fifteen different screen
10   images.

Therefore, a need exists for a method and system in
an electronic auction which permits simultaneous bids on
multiple different items from a single, displayed screen
image.

SUMMARY OF THE INVENTION

An electronic auction method and system are disclosed for permitting simultaneous submission of bids on multiple different items from a single screen image. Multiple different items which are offered for auction are simultaneously displayed on the single screen image. Each of these items may be offered for auction simultaneously using different auction types. Entry of bids is permitted for some or all of these items using the single screen image. The entered bids are then simultaneously submitted from the single screen image. A single confirmation screen image is then displayed which includes simultaneous confirmation of each submitted bid. A single result screen image is also displayed to indicate the results of the submitted bids.

The above as well as additional objectives, features, and advantages of the present invention will become apparent in the following detailed written description.

BRIEF DESCRIPTION OF THE DRAWINGS

The following detailed description when taken in conjunction with the figures presented herein provide a complete disclosure of the invention.

5   **Figure 1** depicts the structure of offerings according to the present invention;

Figure 2 illustrates a broker profile matrix according to the present invention;

Figure 3 depicts a general architecture of an
10   Interactive Offer Server ("IOS") in which the present invention may be implemented;

Figure 4 is an exemplary block diagram of a server according to the present invention; ·

Figure 5 is an exemplary block diagram of a client
15   according to the present invention;

Figure 6 illustrates a single screen image which depicts simultaneously displaying all offerings currently for sale according to the present invention;

Figure 7 depicts a single screen image which
20   illustrates simultaneously displaying all part lots of one offering when only one offering is selected according to the present invention;

Figures 8A and **8B** together illustrate a single screen image which depicts simultaneously displaying all
25   part lots of all offerings when all offerings are selected according to the present invention;

Figure 9 illustrates a single screen image which depicts simultaneously confirming all offers prior to the offers being recorded according to the present invention;

Figure 10 depicts a single screen image which illustrates a single screen image which indicates the results of the offer submission according to the present invention; and

5   **Figure 11** illustrates a high level flow chart which depicts simultaneously submitting offers on multiple different items in an electronic auction according to the present invention.

DETAILED DESCRIPTION OF THE INVENTION

The present method and system is preferably
realized in a plurality of networked computers, including
computer network terminals or consoles, networked
5   database application servers, web servers, and a computer
network. The computer network consoles employed are any
suitable device for accessing remote application services
over a computer network, including, but not limited to:
personal computer-based web browsers, wireless web
10   browsers such as web-enabled wireless telephones and
personal digital assistants ("PDA"), Internet appliances,
and dedicated computer terminals. The database
application servers employable in the invention may be
any of a wide array of available database application
15   servers, including, but not limited to: IBM Lotus Notes
servers, Oracle servers, etc. The web servers
incorporated into the invention may be any suitable
platform, including, but not limited to: IBM's WebSphere
product, Apache Hyper Text Transfer Protocol ("HTTP")
20   servers, secure HTTP servers ("HTTPS"), and the like.
The computer network may include the Internet, intranets,
extranets, dedicated networks such as local area networks
("LAN") and wide area networks ("WAN"), wireless data
networks, and/or any other suitable computer and data
25   communications network. Communications means between
database application servers, computer network consoles,
and web servers may include any suitable data
communications protocols and media including, but not
limited to: dial-up modems over telephone lines,

wireless data transceivers, cable modems, Digital Subscriber Lines ("DSL"), and dedicated data communication lines.

It will be recognized by those skilled in the art
5 that certain combinations and integrations of the features presented herein may be made without departing from the spirit and scope of the invention. Further, it will be recognized that many of the architectural details disclosed herein are disclosed under the inventor's
10 preferred embodiment in order to enhance the robustness and reliability of the invention, but these details may not be necessary to realize the fundamental functionality of the invention.

The present invention is an electronic auction
15 method and system which permits a potential buyer to submit bids on multiple different items simultaneously. A single screen image is displayed which permits entry of multiple different bids on multiple different items. In addition, each of these items may be offered for auction
20 using one of several different auction methods. All available items being auctioned are simultaneously displayed to a potential buyer using a single screen image regardless of the type of auction used for each item. The buyer is then permitted to enter a bid on one
25 or more of the available items from the single screen image. The entered bids are then simultaneously submitted from that single screen image.

A single confirmation screen image is then provided to the buyer after the bids have been entered. The
30 single confirmation screen image simultaneously confirms all bids. If the buyer chooses to complete the

submission process, a single result screen image is used
to confirm the recordation of all of the submitted bids.

Turning to **Figure 1**, broker offerings **30** are
comprised of one or more sets of materials (or services)
5   associated with location and category code pairs.
Typically, locations are related to geographical zones
or regions such as countries, continents, or sales
regions. Categories are typically related to products,
product lines, or services such as computers, hard
10   drives, monitors, minutes of long-distance, megabytes of
transmission or other types of services and products. As
such, an offering **30** which is presented to a broker
contains only materials or services which are being made
available to that broker for which the location and
15   category code meet his broker profile. And, the offering
may include materials from a combination of brokers. For
example as shown in **Figure 1**, an offering **31** to a
European broker may be comprised of a first material code
pair such as location=Europe, and category=power supply.
20   It may also include additional materials with associated
location and category pairs, such as location=Europe and
category=computer_monitor, and location=Germany and
category=Deutsche_AIX_operating system.

A broker profile matrix is disclosed in **Figure 2**.
25   For each broker, a broker profile matrix is defined which
is a two-dimensional table for location and category in
this preferred embodiment. In this example of **Figure 2**,
the locations are indexed against the plurality of
categories, and then a logical enabler, such as a Boolean
30   flag, is recorded for each combination of location and

category pairs. A profile matrix defines the
"entitlement" for a particular broker. Available
products or services which match the location-category
parameter pairs a broker's entitlement profile matrix are
5   made available to that broker, and products and services
which do not meet the parameters of the profile matrix
are not presented for bidding to that broker.   For
example in **Figure 2**, the completed profile matrix for a
hypothetical broker defines that the broker is entitled
10   to receive in offerings for category _1 products in
location_1 and location_3, and for category_2 products
only in location_1, and for category_Y products only in
location_1. The hypothetical broker of this example is
not authorized or entitled to receive offerings for any
15   other location-category parameter pair.

Turning to **Figure 3**, in which the general
architecture of the system of the invention is shown, the
Interactive Offer System ("IOS") **51** is associated with an
offering database **52**. The offering system **50** is included
20   in the larger architecture **59** which includes the brokers'
consoles **58**, the administrator console **56**, and the
traders' consoles **54**. All consoles and the interactive
offering server may communicate either as an integrated
package within one computer system, or as separate
25   computer systems integrated and communicating over a
computer network such as the internet.

In the general architecture of **Figure 3**, the
manufacturer or service provider's goods availability
list **55** is received by the trader consoles **54**. The
30   trader then creates proposed offerings by filtering the

availability list against the broker profile matrices **40** for his broker(s). Those proposed offerings are input into the offering data base **52**, which are then retrieved by the administrator using his administrator console **56**.

5   The administrator then authorizes the proposed offerings and makes a note or change in the offering data base records to indicate such authorization.

During the open bidding process, the brokers may use their consoles, such as web browser personal computers **58**, to retrieve their offerings, and to submit bids via the IOS **51**. When a broker makes contact with the interactive offering server, his identity is first verified by an Authentication Server **57**, according to the preferred embodiment.

15   In response to the broker's request for products or services offerings, the IOS queries the offering database **52** and presents the broker with offerings to which he or she is entitled. An authentication server **57** is included in the preferred embodiment so as to allow the interactive offering server to authenticate the broker prior to presenting any offerings to the broker. As such, the general architecture **59** as shown in **Figure 3** provides each broker with one or more offerings which have been authorized and which have been filtered only to show available materials or services on which he is entitled to bid.

Figure 4 illustrates a block diagram of a data processing system which may be implemented as IOS server **51** in accordance with a preferred embodiment of the present invention. Data processing system **200** may be a

symmetric multiprocessor (SMP) system including a
plurality of processors **202** and **204** connected to system
bus **206**. Alternatively, a single processor system may be
employed. Also connected to system bus **206** is memory

5   controller/cache **208**, which provides an interface to local
memory **209**. I/O bus bridge **210** is connected to system bus
206 and provides an interface to I/O bus **212**. Memory
controller/cache **208** and I/O bus bridge **210** may be
integrated as depicted.

10   Peripheral component interconnect (PCI) bus bridge
214 connected to I/O bus **212** provides an interface to PCI
local bus **216**. A number of modems may be connected to PCI
bus **216**. Typical PCI bus implementations will support
four PCI expansion slots or add-in connectors.

15 Communications links to other network computers may be
provided through modem **218** and network adapter **220**
connected to PCI local bus **216** through add-in boards.

Additional PCI bus bridges **222** and **224** provide
interfaces for additional PCI buses **226** and **228**, from

20 which additional modems or network adapters may be
supported. In this manner, data processing system **200**
allows connections to multiple network computers. A
memory-mapped graphics adapter **230** and hard disk **232** may
also be connected to I/O bus **212** as depicted, either

25 directly or indirectly.

Those of ordinary skill in the art will appreciate
that the hardware depicted in **Figure 4** may vary. For
example, other peripheral devices, such as optical disk
drives and the like, also may be used in addition to or in

place of the hardware depicted. The depicted example is
not meant to imply architectural limitations with respect
to the present invention.

5   The data processing system depicted in **Figure 4** may
be, for example, an IBM RISC/System 6000 system, a product
of International Business Machines Corporation in Armonk,
New York, running the Advanced Interactive Executive (AIX)
operating system.

10   **Figure 5** depicts a block diagram which illustrates a
data processing system which may be implemented as one or
more broker consoles **58**. Data processing system **300** is an
example of a client computer. Data processing system **300**
employs a peripheral component interconnect (PCI) local
bus architecture. Although the depicted example employs a
15   PCI bus, other bus architectures such as Accelerated
Graphics Port (AGP) and Industry Standard Architecture
(ISA) may be used. Processor **302** and main memory **304** are
connected to PCI local bus **306** through PCI bridge **308**.
PCI bridge **308** also may include an integrated memory
20   controller and cache memory for processor **302**. Additional
connections to PCI local bus **306** may be made through
direct component interconnection or through add-in boards.
In the depicted example, local area network (LAN) adapter
310, SCSI host bus adapter **312**, and expansion bus
25   interface **314** are connected to PCI local bus **306** by direct
component connection. In contrast, audio adapter **316**,
graphics adapter **318**, and audio/video adapter **319** are
connected to PCI local bus **306** by add-in boards inserted
into expansion slots. Expansion bus interface **314**
30   provides a connection for a keyboard and mouse adapter

320, modem 322, and additional memory 324. Small computer

system interface (SCSI) host bus adapter 312 provides a

connection for hard disk drive 326, tape drive 328, and

CD-ROM drive 330. Typical PCI local bus implementations

5   will support three or four PCI expansion slots or add-in

connectors.

An operating system runs on processor 302 and is used

to coordinate and provide control of various components

within data processing system 300 in **Figure 5**. The

10   operating system may be a commercially available operating

system, such as Windows 2000, which is available from

Microsoft Corporation. An object oriented programming

system such as Java may run in conjunction with the

operating system and provide calls to the operating system

15   from Java programs or applications executing on data

processing system 300. "Java" is a trademark of Sun

Microsystems, Inc. Instructions for the operating system,

the object-oriented operating system, and applications or

programs are located on storage devices, such as hard disk

20   drive 326, and may be loaded into main memory 304 for

execution by processor 302.

Those of ordinary skill in the art will appreciate

that the hardware in **Figure 5** may vary depending on the

implementation. Other internal hardware or peripheral

25   devices, such as flash ROM (or equivalent nonvolatile

memory) or optical disk drives and the like, may be used

in addition to or in place of the hardware depicted in

Figure 5. Also, the processes of the present invention

may be applied to a multiprocessor data processing

30   system.

As another example, data processing system **300** may be a stand-alone system configured to be bootable without relying on some type of network communication interface, whether or not data processing system **300** comprises some

5   type of network communication interface. As a further example, data processing system **300** may be a Personal Digital Assistant (PDA) device, which is configured with ROM and/or flash ROM in order to provide non-volatile memory for storing operating system files and/or

10 user-generated data.

The depicted example in **Figure 5** and above-described examples are not meant to imply architectural limitations. For example, data processing system **300** also may be a notebook computer or hand held computer in

15 addition to taking the form of a PDA. Data processing system **300** also may be a kiosk or a web appliance.

Figure 6 illustrates a single screen image which depicts simultaneously displaying all offerings currently for auction according to the present invention. As

20 depicted in **Figure 6**, four different offerings are currently available for sale to a particular buyer. Each offering has an associated offering type. The offering type describes the type of auction to be conducted to sell that particular offering. In **Figure 6,** one offering

25 is a "priced" offering, two are "single" offerings, and one is an "interactive" offering.

In a "priced" offering, an item is made available at a pre-established price. The item is sold on a first-come, first-served basis. A potential buyer may

30 make an offer to buy any available priced item prior to

the close of an offer. Items are sold to the first buyer who submits a bid for the pre-established price.

For the purposes of this disclosure, the term "item" will mean something which is offered for sale in an auction on which a potential buyer may bid. An item may include one or more things. For example, the term "item" as used herein may refer to a single part lot which include multiple parts. "Item" has also been used herein to refer to multiple part lots.

In a "single" offering, also called a "sealed" offer, a potential buyer submits a blind bid. At any time before the offer closes, or expires, the potential buyer may modify or cancel the bid. A potential buyer is not permitted to view bids made by other potential buyers.

In an "interactive" offering, a potential buyer may view the current bid made for an item. The potential buyer must then make a bid which exceeds the current bid. Some interactive offerings specify a required increment such that the next bid must exceed the current bid by the specified increment amount.

In interactive offerings, a proxy offer is often permitted. A proxy offer allows a potential buyer to participate in the ongoing auction without having to constantly monitor the auction. A potential buyer may enter a proxy offer which is the maximum price this potential buyer is willing to pay for the item. The proxy offer will automatically enter the minimum increment price necessary to exceed the current bid up to the amount of the proxy offer.

The screen image illustrated by **Figure 6** indicates that the power supply offering includes one lot, the servers offering includes four lots, the ThinkPads offering includes five lots, and the PC parts offering

5 includes three lots. A potential buyer may select one or more of these offerings from the current screen image.

Figure 7 depicts a single screen image which illustrates simultaneously displaying all part lots of one offering when only one offering is selected from the

10 screen image of **Figure 6** according to the present invention.

Figures 8A and **8B** together illustrate a single screen image which depicts simultaneously displaying all part lots of all offerings when all offerings are

15 selected from the screen image of **Figure 6** according to the present invention. The part lots included in each offering are grouped according to each offering's type.

Each single screen image of the present invention is preferably a single web page. Those skilled in the art

20 will recognize that some web pages are too large to be completely displayed on a display screen at one time. Therefore, as is well known in the art, a cursor may be used to scroll through the entire page. The single screen image of the present invention is a single web

25 page even though some pages, such as depicted by **Figures 8A** and **8B**, are too large to be completely displayed without the need for scrolling through the page.

For interactive offerings, a new offer entry field and a proxy offer entry field are displayed. A potential

30 buyer may enter an amount into the new offer field for

one or more offerings. In addition, a potential buyer may also enter a proxy for one or more offerings.

For priced offerings, a place offer entry field is displayed. If the buyer wishes to buy an item which is
5   offered using a priced offering type, the buyer must simply select the place offer entry field.

For single offerings, a new offer entry field is displayed. A potential buyer may enter a bid amount into the entry field for one or more single offers.
10   A potential buyer, thus, may enter a bid for multiple different items from the same screen display. In addition, the buyer may enter bids on different items which are offered using different offer types, or auction types.   In the example depicted in **Figures 8A** and **8B**, a
15   potential buyer has entered a bid for two different items which are offered as interactive offers, one item offered as a priced offer, and two items offered as single offers. All of these different bids have been entered from the same screen image. All of the offers are then
20   submitted simultaneously.

Figure 9 illustrates a single screen image which depicts simultaneously confirming all offers prior to the offers being recorded according to the present invention. The confirmations for all submitted bids are
25   simultaneously displayed on a single screen image. **Figure 9** depicts a single confirmation screen which confirms the submission of bids on five different offerings. The potential buyer then may either cancel the bids or complete the submission process in order to
30   have the bids recorded.

Figure 10 depicts a single screen image which illustrates a single screen image which indicates the results of the offer submission according to the present invention after the potential buyer confirmed the bids

5 from the screen image depicted by **Figure 9**.

Figure 11 illustrates a high level flow chart which depicts simultaneously submitting offers on multiple different items in an electronic auction according to the present invention. The process starts as depicted by

10 block **1100** and thereafter passes to block **1102** which illustrates the display of all offerings the potential buyer is entitled to view in a single screen image such as illustrated by **Figure 6**. The process then passes to block **1104** which illustrates a determination of whether

15 or not a selection of one or more offerings has been received. If a determination is made that no selection has been received, the process passes back to block **1104**. If a determination is made that a selection has been received, the process passes to block **1106** which depicts

20 the simultaneous display of all items included in the selected offerings in a single screen image, such as illustrated by either **Figure 7** or **Figures 8A** and **8B**. The single screen image will include entry fields for each item. The entry fields which are displayed for a

25 particular item will depend on the type of offering type of the item. For example, for interactive type offerings, a NEW OFFER field and a PROXY OFFER LIMIT field are displayed. For priced offers, a PLACE OFFER field is displayed. For single offers, a NEW OFFER

30 field is displayed.

The process then passes to block **1108** which illustrates a determination of whether or not an input has been received in one or more entry fields for one or more of the displayed items. If a determination is made

5 that no input has been received, the process passes back to block **1108**. If a determination is made that an input has been received in one or more entry fields, the process passes to block **1110** which depicts displaying the received input(s) using the same, single screen image.

10 The process then passes to block **1112** which illustrates a determination of whether or not the offer(s) are to be submitted and/or cancelled. If a determination is made that none of the offer(s) are to be submitted and/or cancelled, the process passes to block **1124** which depicts

15 a determination of whether or not the entry field(s) are to be reset. When the entry field(s) are reset, they are set back to the values which were last submitted for the field(s). If a field was originally empty, the field will be reset to be empty. If, however, the field

20 included a particular value prior to the display of the offerings, as depicted by block **1106**, the field will be reset to that particular value. If a determination is made that the entry field(s) are not to be reset, the process passes to block **1108**.

25   Referring again to block **1124**, if a determination is made that the one or more entry field(s) are to be reset, the process passes to block **1126** which illustrates removing all new inputs for each entry field and displaying the original values included in the entry

30 fields. The process passes back to block **1008**.

Referring again to block **1112**, if a determination is made that the offer(s) are to be submitted and/or cancelled, the process passes to block **1114** which depicts simultaneously submitting all entered offers using a

5 single screen image. Next, block **1116** illustrates simultaneously displaying a confirmation for each submitted offer on a single screen image. Thereafter, block **1118** depicts a determination of whether or not the buyer wishes to confirm the offers and any changes made

10 to existing offers. If a determination is made that the buyer does not wish to confirm the offers, the process passes back to block **1114**. Referring again to block **1118**, if a determination is made that the buyer does wish to confirm the offers and any changes made to existing

15 offers, the process passes to block **1120** which illustrates recording all submitted offers and changes to existing offers. The process then terminates as depicted by block **1122**.

It will be understood by those skilled in the art

20 and from the foregoing description that various modifications and changes may be made in the preferred embodiment of the present invention without departing from its spirit and scope. It is intended that this description is for purposes of illustration only and

25 should not be construed in a limiting sense. The scope of this invention should be defined by the following claims.